

# **The value of Earth observations: Methods and findings on the value of Landsat imagery**

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## **ABSTRACT**

The USGS provides a variety of Earth observation information to the public at no cost, such as data from the streamgage and Landsat programs. These data are used extensively in managing and monitoring natural resources, natural hazards, and the impacts of climate change. Given the potential budget and data gaps faced by Earth observing systems around the globe, understanding the socioeconomic and scientific value of these data will be useful to decision-makers for the next decade and more. Recent USGS research on Landsat data has advanced the literature by using a variety of methods to estimate value. A 2012 survey of Landsat users registered with USGS used contingent valuation to estimate benefits to users. The annual economic benefit from Landsat imagery obtained from USGS in 2011 was estimated to be \$1.8 billion for U.S. users. Multiple case studies carried out in 2013 provided application- and sector-specific descriptions of value from private-sector, State, and Federal natural resource managers. The case studies included the impacts of no-cost Landsat data on time spent on work, quality of work, and scope of work, as well as on the costs of work. A 2014 requirements assessment focused on Federal users' needs, and identified operational or decision-supportive uses of Landsat in a broader variety of fields than was previously recognized. These studies have also identified value in specific characteristics of the Landsat program. For example, two-thirds of Landsat applications studied require eight-day repeat data collection (i.e. multiple satellites on orbit); applications increasingly rely on the 42-year archive (not only current data); and three-fourths of users are dependent on the free data policy. Taken together, these approaches provide an updated understanding of Landsat's stakeholder communities, and strong evidence on which to base program and budget priorities. These methods also can be used to demonstrate the value of a variety of other public goods.